JOINT MPH PROGRAM

University of Gondar and Addis Continental Institute of Public Health

Assessment of Knowledge, Attitude and Practice of diabetic Patients on dietary control of Diabetes in Adama and Bushoftu hospitals.

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LIST OF ACRONYMS

ACIPH	Addis continental institute of public health
AOR	Adjusted Odds Ratio
CI	Confidence Interval
COR	Crude Odds Ratio
DM	Diabetes mellitus
DKA	Diabetic ketoacidosis
FBS	Fasting blood sugar
FGD	Focused group discussion
HbA1c	Glycosylated hemoglobin
HIV	Human immunodeficiency virus
HDL	High density lipoprotein
IC	Information Communication
KAP	**K**nowledge, **A**ttitude and **P**ractice.
LDL	Low Density Lipoprotein
MOH	Ethiopian Ministry of Health
SD	**S**tandard deviation
UoG	University of Gondar
UK	United Kingdom
WHO	World Health Organization

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ABSTRACT

BACKGROUND Diabetes mellitus was used to be disease of the developed world but now its prevalence is rapidly increasing globally. Currently developing countries including Ethiopia are suffering from both the pandemic of communicable disease and noncommunicable disease of which diabetes is the major one. The management of diabetes involves dietary modification, physical exercise and drug therapy. The aim of this study is to assess the knowledge, attitude and practice of diabetic patients about dietary control of diabetes and their compliance to dietary advice.

METHODS: This study has a quantitative crossectional survey and qualitative indepth interview and focus group discussion study designs. Data was collected by means of structured questionnaire, in-depth interviews and FGD. **RESULTS:** 410 respondents, 229(55.9%) females and 181(44.1%) male with mean (±SD) age 49.6± 13.8years. two hundred eighty four (69.3%) were orthodox Christian followers. More than half (64.1%) of the participants were married. One hundred ninety seven (48.0%) study participants had good knowledge on dietary control of DM. About half of study subjects have good attitude towards dietary control of diabetes and two hundred thirty seven (57.8%) study participants had good practice on dietary control of DM. Compliance to dietary advice was a challenge for most diabetics because of different reasons. **CONCLUSIONS:** this study indicates that low level of knowledge, attitude and practice about dietary control of DM and poor compliance with dietary advice. RECOMMENDATION: Improving the knowledge, attitude and practice of diabetic patients and addressing challenges for their dietary compliance should be prioritized in the management of Diabetes.

Key words: diabetes mellitus ,knowledge,attitude,practice,dietary control,glycemic control.

1. Introduction

Diabetes mellitus(DM) refers to a group of chronic metabolic disorders characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The metabolic dysregulation associated with diabetes results in damage of multiple organs in the long term. Diabetes mellitus is classified into Type 1, Type 2, other specific types of DM and Gestational DM. (1, 2)

DM is a major worldwide health problem and its prevalence is rising dramatically (2). The global burden of disease study of the World Health Organization (WHO) estimated that about 177 million people in the world had diabetes in the year 2000 as compared to only 38million estimated cases in 1985(1,2).According to current trends more than 360 million individuals will have DM by the year 2030.(2)

Currently Communicable diseases make up the greatest disease burden in Sub-Saharan Africa, but by 2020, noncommunicable diseases, including hypertension and diabetes, will outstrip communicable diseases as a cause of death (23). Even allowing for the uncertainties of predicting future disease patterns posed by the unfolding of the human immunodeficiency virus (HIV) epidemic in Sub-Saharan Africa, it is clear that the relative importance of noncommunicable diseases will increase (24). This situation is a result of demographic change (populations with older age structures), increasing urbanization, and associated changes in risk-factor levels, such as tobacco smoking, obesity, and physical inactivity (25). Countries of Sub-Saharan Africa are in various stages of the epidemiological transition with a multiple burden of diseases.(1)

The estimated prevalence of DM in the adult population of Ethiopia is 1.9 % according to a study done based on data obtained from clinics providing unique DM services in Gondar(b/n

1995 and 2008) and Jimma (b/n 2002 and 2008) zones.(17,18).WHO estimated the number of diabetic cases in Ethiopia to be 800,000 by the year 2000, and the number is expected to increase to 1.8 million by 2030(3).Because of the increasing trend of DM in Ethiopia, much attention needs to be given to study its prevalence, its impact on the health of the people and patients' awareness about the disease and its management.

Diabetic management involves keeping the blood sugar level as close to normal as safely possible, control of blood pressure and lowering LDL cholesterol level in addition to drug treatment that may be required(4,5). Modifying eating and regular exercise are the first step in controlling hyperglycemia (5).

The goal of diet management are improving quality of life, nutritional status and risk factors as well as preventing the chronic complications of DM. Diet control improves glycemic control and may reduce HbA1c by 1.0 to 2.0%.The management of diabetes becomes simpler and easier for the treating physician as well as for diabetic patient, if the patient understands and follows the dietary principles taught to him or her by the doctor or dietician. Sometimes success or failure of management of diabetes may depend on the knowledge of the diabetics about the dietary principles of diabetes. Dietary noncompliance of patients is a major limiting factor in achieving glycemic control.

Good glycemic control in diabetic patients is a real challenge to health providers both in developing and developed countries..

Diabetes being a chronic illness requires sound knowledge of self care by patients so that they can contribute meaningfully in the management of their lives. (25)

A situation where diabetic patients visit health institutes regularly and their blood glucose levels still remain high despite the treatment they receive is a problem that calls for attention.

The question which readily come to mind is, are patients aware of the role diet plays in the management of diabetes mellitus and are they practicing it properly . Answer to this question prompted the researcher to carry out this study.

There is no study done so far to assess KAP of diabetic patients on dietary control of diabetes mellitus in Ethiopia. As oromia is one of the regions in Ethiopia with increasing prevalence of Diabetes mellitus, it's important to assess awareness of diabetic patients on different aspects of the disease and act according to the gaps identified. Adama and Bushoftu are two of the major cities found in east showa zone of oromia region. This study tried to assess the knowledge, attitude and practice of diabetic patients on dietary control of diabetes in Adama and Bushoftu towns and recommended what interventions are needed to improve patients' knowledge, attitude and practice of dietary control of DM and improve patients' compliance to dietary advices they are given by health care providers.

2. LITERATURE REVIEW

2.1 Global Burden of Diabetes Mellitus

Diabetes is a major health problem currently in both developed and developing countries. Its prevalence is increasing rapidly worldwide and more so in developing countries because of life style change. (4,7). The global burden of disease study of the World Health Organization estimated that about 177 million people in the world had diabetes in the year 2000. Communicable diseases still make up the greatest disease burden, but by 2020, noncommunicable diseases, including hypertension and diabetes, will outstrip communicable diseases as a cause of death. (1)

Diabetes Mellitus, the 21st century epidemic, threatens to overwhelm the health care system in the near future. It imposes a high economic burden in terms of health care expenditure, lost productivity and forgone economic growth. Unfortunately the majority of the people with diabetes in developing countries are within the productive age group 45-64yrs. (11)

2.2 Regional Burden of Diabetes Mellitus.

The prevalence of diabetes in Africa communities is increasing with the aging of the population and lifestyle changes. Increasing sedentary lifestyles, coupled with rapidly growing urban cultures and modified diets, are predicted to triple the prevalence of diabetes mellitus in the next 25years. (12)

Age-specific levels of diabetes and hypertension in many urban areas of Sub-Saharan Africa are as high as, or higher than, those in most Western European countries (24). In a demographic surveillance system in Tanzania they account for between one in six and one in three adult deaths, with age-specific death rates from non-specific, noncommunicable diseases

being as high as or higher than in developed countries. (5)In Kenya, the international diabetes federation estimated the prevalence of diabetes to be about 3.3% in 2007.

2.3 Burden of Diabetes Mellitus in Ethiopia.

In Ethiopia the estimated prevalence of DM in the adult population 1.9 %(17) according to a study done based on data obtained from clinics providing unique DM services in Gondar(between 1995 and 2008) and Jimma (b/n 2002 and 2008) zones.(18). WHO estimated the number of diabetic cases in Ethiopia to be 800,000 by the year 2000, which is expected to increase to 1.8million by 2030.(3)

2.4 Health outcomes of DM

Diabetes is a major but underreported cause of death. In the United States, diabetes was listed as the sixth leading cause of death; a recent estimate suggested that diabetes was the fifth leading cause of death worldwide and was responsible for almost 3million deaths annually (1.7%-5.2% of deaths worldwide).(2)

Diabetes has both acute (DKA, hyperglycemic hyperosmolar state) and chronic complications affecting many organ systems. The major disease, disability and death caused by DM are mainly due to the chronic complications. (2)

2.5 Management of diabetes

Main modality of diabetic control is life style modification, i.e. consuming healthy diet, avoiding alcohol and smoking, doing regular exercise and blood pressure control. Consuming healthy diet means avoiding simple carbohydrates, such as refined sugar, and eat complex carbohydrates, such as grains and some vegetables, instead. Controlling fat intake is also very important(9).According to nutritional recommendation for adults with diabetes, from the total

caloric intake 20-35% should come from fat,45-65% from carbohydrate and 10-35% come from protein.(2)

The goals of diet control are to improve quality of life, nutritional status and risk factors as well as to prevent the chronic complications of diabetes. It is well documented that diet control can improve glycemic control. (4)

According to one study, Life Style Over and Above Drugs in Diabetes, done at university of otago, patients with high risk of type 2 DM who strictly followed healthier diet had significantly improved blood sugar level beyond what a medication alone can achieve. (6).To effectively manage HgbA1C (hemoglobin A1C) and blood sugar levels, it is important to understand how to balance food intake, physical activity, and medication. Making healthy food choices every day has both immediate and long-term effects. With education, practice, and assistance from a dietitian and/or a diabetes educator, it is possible to eat well and control diabetes. (8)

Weight loss can be achieved for type 2 diabetic patients by taking low carbohydrate and low fat diet. Low carbohydrate diet can also results in significant increase in HDL cholesterol, reduced insulin level, reduced postprandial hyperglycemia and improved insulin sensitivity. (15)

2.6 Knowledge, Attitude and Practice of diabetic patient about dietary control of diabetes.

Knowledge is the greatest weapon in the fight against diabetes mellitus. People with good knowledge can assess their risk of diabetes, will be motivated to seek proper treatment and care and are responsible to take charge of their disease. (11) The management of diabetes

becomes simpler and easier for the treating physician as well as for diabetic patient, if the patient understands and follows the dietary principles taught to him or her by the doctor or dietician. Sometimes success or failure of management of diabetes may depend on the knowledge of the diabetics about the dietary principles of diabetes. (26)

Achieving optimal glycemic control in diabetic patients has proven real challenge to health providers in developing and developed countries alike. A Swedish survey found that only 34% of type 2 diabetes patients had good metabolic control. In the United Arab Emirates, the mean HbA1c of Emirates with type 2 diabetes in primary health care setting has been shown to be 8.3%, and only 38% of patients had good glycemic control (HbA1c<7.0%).

In spite of the important role diet has in the management of diabetes mellitus, diabetic patients are unaware of its place in ensuring good glycemic control. This result in poor compliance and adherence with dietary advice they are given by health care providers. (10).A study done in Nigeria showed lack of knowledge of diabetic patients on self care measures and only 4.2% agreed that embracing a healthy eating plan is necessary for diabetics(25).

In Pakistan, there are certain beliefs and misconceptions prevalent among people with diabetes that are based on such belief system among which nutrition related belief is the most common. Example of nutrition related belief is a person with diabetes should not eat root vegetables as they are generally considered to be sweet, and also no restriction should be made on the amount of bread taken if it is prepared from chickpea flour. (14)

Diabetic patients and populations with high risk of diabetes are reluctant on diabetic dietary practice both in developed countries and in developing countries too. In the UK, a study

showed that only 39% patients ate within 20% of their prescribed carbohydrate intake. The same condition is reflected in African community too. In a community based study done in Kenya 75% of interviewed people had poor dietary practice. (11)

Dietary noncompliance of patients is a major limiting factor in achieving the glycemic control. Noncompliance of diabetic patients with dietary advice is a challenge for health care providers treating diabetic patients in most countries of the world. Studies done in Mexico and Thailand showed non-compliance rates to diet of 62% and 45.7% respectively. (4). Another study done in United Arab Emirates showed most of the dietary habits of diabetic patients were violating good dietary advice . In Indonesia, a study showed that despite eating or diet regulation, more than half of diabetic patients had failed in such diet program (13).

Improving of knowledge of the people can improve their attitude towards diabetes and in the long run change their practices to embrace healthier lifestyles such as eating healthy foods and engaging in physical activity. (11)

3. Objectives

3.1 General Objective;

- To assess knowledge, attitude and practice of diabetic patients on dietary control of diabetes, identify factors associated with KAP and explore patient compliance to dietary management of diabetes.

3.2 Specific objectives

- To assess knowledge of diabetic patients on dietary control of diabetes.
- To assess attitude of diabetic patients on dietary control of diabetes
- To assess practice of diabetic patients on dietary control of diabetes
- To identify factors associated with KAP on dietary control of diabetes.
- To explore patients compliance to dietary management of diabetes.

4. Methods

4.1. Study area.

The study setting

Adama is a city in central Ethiopia and it is located in the Misraq Shewa Zone of Oromia region, at 8°33′N 39°16′E / 8.55°N 39.27°E / 8.55; 39.27 at an elevation of 1712 meters, 99 km southeast of Addis Ababa. The city sits between the base of an escarpment to the west, and the Great Rift Valley to the east. Based on figures from the Central Statistical Agency in 2005, this city has an estimated total population of 228,623 of whom 114,255 were males and were 114,368 females. There is one public hospital and four government health centers which gives medical service to the population. Of the five governmental health institutes, only the hospital gives chronic follow up service for Diabetic patients.

Bushoftu is also a city located in central Ethiopia and it is located in the Misraq Shewa Zone of Oromia region, 47 km southeast of Addis Ababa. and has a latitude and longitude of 8°45′N 38°59′E / 8.75°N 38.983°E / 8.75; 38.983 with an elevation of 1920 meters. Based on figures from the Central Statistical Agency in 2005, Debre Zeyit has an estimated total population of 131,159, of whom 64,642 are men and 66,517 women The city has multiple Lakes which attracts tourists from different parts of the world. There is one public hospital and three government health centers which give medical service to the population. Of the four governmental health institutes, only the hospital gives chronic follow up service for Diabetic patients.

4.2. Study design

This descriptive study, using cross-sectional study design supplemented by a qualitative study, was conducted among adult diabetic patients (both type 1and 2) 18 years and above, ,

in Adama and Bushoftu hospitals from February to May 2011G.C to assess the knowledge ,attitude and practice about dietary control of diabetes. For the quantitative part, a cross-sectional survey with internal comparison was carried out and also medical records on information about glycemic control were reviewed from patient charts.

The qualitative part of the study, Focused Group Discussions and in-depth interviews, was conducted to explore patient's compliance to dietary management of diabetes.

4.3 Study population.

4.3.1 Source population

The source population: all Diabetic patients who have follow up in Adama referral hospital in Adama town and Bushoftu Hospital in Bushoftu town.

4.3.2 Study subjects

The study subjects were all diabetic patients coming to the health institutes for follow up during the study period and who were eligible to participate in the study according to the inclusion and exclusion criteria.

Inclusion criteria

- All diabetic patients who are enrolled to chronic follow up in the selected hospitals.

Exclusion criteria

- Diabetic patients who are enrolled to chronic follow up in the selected health institute but too sick to participate in the study during data collection time.
- Diabetic patients below the age of 18
- Diabetic patients who are referred to other health institute.
- Diabetic patients who discontinued follow up.
- Diabetic patients who are admitted for inpatient management.

4.4 sample size and sampling procedure

Sample size was calculated using formula for estimating single population proportion employing expected prevalence of knowledge 50% as there was no prior study on the subject in the study area which shows the prevalence of Knowledge, Attitude or Practice, at 95% confidence level and 5% margin of error giving 384. A nonresponse rate of 10% was used to give a final sample size of 423. The total sample size 423 was distributed to the two hospitals employing proportional to the number of diabetic patients coming for follow up in diabetic clinic during the study period. All diabetic patients visiting to diabetic clinic during data collection period and who fulfilled the eligibility criteria were included in the study.

Qualitative part of the study.

To obtain robust information and understand a range of patients' views on dietary compliance, a purposive recruitment of participants of both sex and types of diabetes mellitus (Type 1& 2) was done. The participants included in the study were those who fulfill the inclusion criteria. Two focused group discussion were conducted, one at each facility. Participants of each focused group discussion were seven. Indepth interview was conducted until information saturation was reached.

4.5. Data collection tools and procedures.

Computer science graduates working as data clerks in ART clinic of the study hospitals and nearby health centers involved in data collection using a pre-tested structured Amharic version questionnaire. The data collectors were given two days training on data collection techniques and on the questionnaire before starting data collection. The questionnaire was developed based on sources from previous researches and literature review with some

modification to fit into our setup. It had been pretested on 21 diabetic patients in a similar setup and modified as necessary for clarity, sensitiveness and completeness. Data on socio-demographic variables such as age, sex, religion, ethnicity, marital status, educational status, occupation and income, health profile variables such as DM duration, duration on drug treatment, antidiabetic medications, other chronic illness and Dm association membership were collected in addition to information collected on KAP on dietary control of diabetes. A scoring system was developed for each KAP questions; each correct answer was given a score of 'one' and each wrong answer was given a score of 'zero' for knowledge and practice part (15). Attitude questions had 1-5 scores for each choice .Two categories were defined on the bases of the score obtained by each participant: good (greater than or equal to the mean of Knowledge, Attitude or practice score) and poor (less than the mean of Knowledge, Attitude or practice score).In addition, patients' clinical records on glycemic control for the last 3 visits were reviewed.

Qualitative part of the study.

Interview guide and semi-structured interview guide was used for focus group discussion and individual in-depth interview respectively. The questions were first prepared in English and then translated to Amharic. Eligible diabetic patients who came to the health facilities for follow up were approached by researcher and recruited for the study. After sufficient explanation was given by the researcher, each member of the FGD agreed that the discussion could be tape recorded. The individual in-depth interview was also tape recorded after informed consent was taken. Two FGDs which lasted 45-50min were conducted one at each health facilities under the study. Both FGDs were led by the researcher and note was taken by

an experienced note taker. Five in-depth interviews were conducted by the researcher. Field notes were taken during each interview.

4.6.Data Quality Assurance

Quantitative study.

To ensure data quality, data collectors were closely supervised by an experienced supervisor who checked all filled questionnaires for completeness before the interviewer leaves the area. Where information was missing the interviewer revisited the respondent for further information unless they had initially declined to disclose. All the collected data was checked by the principal investigator.

Data was cleaned during template formation by putting good skip pattern and by limiting values that enter within a variable; during data entry by counterchecking with hard copy data for missing variables or for outliers and correcting according to the hard copy data or treating it as missing value if also missing on the hard copy; after data was completed and transferred to SPSS, by running simple frequency and if there is inconsistency with the sample size by going back to hard data and checking and also by sorting.

Qualitative study.

FGDs and in-depth interview were tape recorded. For the FDG, In addition to tape recording the discussion, note was taken by note taker. The principal investigator also took note when conducting in-depth interview and FGD. During transcription all collected data were used (tape recordings and notes).

4.7. Data Analysis

Quantitative study

Data were entered in to a computer using Epi Info 3.5.1 software and transferred to SPSS for windows version 15.0 software using stat transfer software for analysis. Data were analyzed using SPSS for windows version 15.0. Proportions, percentages, ratios, frequency distribution, measures of central tendency and measures of dispersion were used to describe data on KAP. Chi square test was used to see the association between sociodemographic, health profile variables and glycemic control with KAP. After running Logistic regression all variables with $P<0.2$ were inserted in to the final model. Finally Variables with $P<0.05$ were taken as having significant association.

Independent variables

- Socio-demographic characteristics (age, sex, income, marital status, education, religion, occupation, ethnicity),
- Health profiles (duration of diabetes, medications, duration of treatment, other chronic illness, Dm association membership), FBS.

Dependent variable

- Knowledge about dietary control of diabetes
- Attitude towards dietary control of diabetes
- Practice on dietary control of diabetes.

Qualitative study.

Conversation during FGD and indepth interview was transcribed verbatim and translated in to English, coded and categorized in to different themes. Finally the compilation and summarization of different concepts was done. Data was analyzed using Open Code software

4.8. Operational Definition

Good glycemic control--fasting blood sugar 70-120mg/dl. (17)

Knowledge about dietary control of diabetes—understanding of what dietary control of diabetes is by the diabetic patient as shown by their answer to specific knowledge questions.

Attitude towards dietary control of diabetes— feeling of diabetic patient about dietary control of diabetes as shown by their answer to specific attitude questions.

Practice on dietary control of diabetes—following dietary recommendations for diabetic patient as shown by their answer to specific practice questions

Good knowledge on dietary control of DM—if DM patient scores the mean or above the mean knowledge score.

Poor knowledge on dietary control of DM—if DM patient scores below the mean of knowledge score.

Good attitude towards dietary control of DM—if DM patient scores the mean or above the mean of attitude score.

Poor attitude towards dietary control of DM—if DM patient scores below the mean of attitude score

Good practice of dietary control of DM—if DM patient scores the mean or above the mean of practice score

Poor practice of dietary control of DM—if DM patient scores below the mean of practice score.

Dietary manual— written document which contains the detailed amount of daily calories to be taken by DM patients from carbohydrate, protein and fat. It also tells the number of times patients need to take their meals daily.

Ethical considerations

The ethical approval and clearance was obtained from Gondar University and Addis Continental Institute of Public health Ethical Committee. Official letter was given to officials of the regional health bureau, town health office and health institutes selected for the study and their permission was secured. The necessary explanation about the purpose of the study and its procedure was given and oral consent was obtained from the respondents. Study participants were explained as they have the full right not to participate in the study if they are not willing or to quite their participation in the study at any time if they want. To ensure confidentiality of information, participants name was not used during data collection and this was clearly explained to participants of the study. Arrangements were made in the health facilities if there were a need of emergency medical care for the participants but fortunately nothing was happened.

5. RESULT

5.1 Sociodemographic characteristics of study subjects

Out of 423 study participants planned, 410 were willing to participate in the study giving response rate of 96.9%. Among these, females were 229(55.9%) and males were 181(44.1%).The mean ±SD age of respondents was 49.6± 13.8years. The majority of participants 284 (69.3%) were orthodox Christian followers followed by protestant 60(14.6%), Muslim 58(14.1%) and catholic 8(2%).

Concerning the ethnic profile of study subjects, Oromo and Amhara constitute 178(43.4%) and 170 (41.5%) respectively. More than half (64.1%) of the participants were married and the rest were single (11.7%), widowed (14.6%), and divorced (9.5%).

A look at the educational status of study subjects, 71(17.3%) were illiterate, 66(16.1%) can read and write only, 240(58.5%) had attended grade 1-12, 33(8%) had certificate and above. One hundred eight (26.1%) participants were house wives by occupation, 77(18.8%) were civil servants, 50(12.2%) were retired, 61(14.9%) had no job and the remaining 112(27.3%) belonged to other categories. The median income of study participants is 600.00Birr.[table1]

Table 1. Sociodemographic characteristics of participants, Adama and Bushoftu hospitals, 2011G.C

Variable	Frequency	%
Age (years)		
18-27	26	6.3
28-37	54	13.2
38-47	83	20.2
48-57	124	30.2
58-67	78	19.0
≥68	45	11.0
Sex		
Female	229	55.9
Male	181	44.1
Religion		
Orthodox	284	69.3
Protestant	60	14.6
Muslim	58	14.1
Catholic	8	2.0
Ethnic group(n=408)		
Oromo	178	43.4
Amhara	170	41.5
Gurage/Silte	36	8.8
Others	24	5.9
Marital status		
Single	48	11.7
Married in union	263	64.1
Widowed	60	14.6
Divorced	39	9.5
Educational status		
Illiterate	71	17.3
Read and write	66	16.1
Grade 1-8	128	31.2
Grade 9-12	112	27.3
Certificate and above	33	8.0
Occupation (n=408)		
Housewife	108	26.3
Civil servant	77	18.8
Retired	50	12.2
Daily laborer	34	8.3
Merchant	26	6.3
Student	14	3.4
No job	61	14.9
Others	38	9.3
Income (n=400)		
<500Birr	171	42.8
≥500Birr	172	43.0
Don’t know	57	14.3

5.2. Health profile of study subjects.

Fifty three (12.9%) study subjects were having the diabetes for less than one year, 152(37.1%) for 1-5years and the rest 205(50%) had diabetes for >5years.fifty six (13.7%) of study subjects were on diabetes drug treatment for less than one year, 64(15.6%) for 1-2years,112(27.3%) for 2-5years and 174(42.2%) for >5years.Four(1%) study participants were not started on drug therapy and they were trying to control their diabetes with life style modification(dietary modification and exercise).concerning the type of medications participants were taking 168(41.2%) insulin injection,152(37.3%) Glibenclamide, 43(10.6%) metformine and 43(10.6%) Metformine with Glibenclamide.

One hundred ninety (46.3%) study subjects have additional one or more chronic illness. Out of the 190 subjects who had additional chronic illness, 97(51%) had hypertension, 81(42.6%) had renal disease, 11(5.8%) cardiac disease, 10(5.3%) dyslipidemia and the rest had others. Two hundred fifty eight (62.9%) study subjects are member of diabetic association found in their area. The median Fasting Blood Sugar level of study subjects was 145.67mg/dl and 293(72.2%) participants had poorly controlled Fasting Blood Sugar level.[Table 2]

Table 2. Health profile of participants, Adama and Bushoftu hospitals, 2011G.C

Variable	Frequency	%
DM duration		
<1year	53	12.9
1-5years	152	37.1
5-10years	90	22.0
>10years	115	28.0
Duration on DM treatment(drug therapy)		
<1year	56	13.7
1-2years	64	15.6
2-5years	112	27.3
>5years	174	42.4
Not yet started on medication	4	1.0
Current medication(n=406)		
Insulin inj	168	41.4
Glibenclamide	152	37.4
Metformine	43	10.6
Metformine and Glibenclamide	43	10.6
Other chronic illness		
Yes	190	46.3
No	220	53.7
Dm association membership		
Yes	258	62.9
No	152	37.1
Fasting blood sugar(n=406)		
Well controlled	113	27.8
Poorly controlled	293	72.2

5.3. Knowledge regarding dietary control of diabetes.

The mean (±SD) knowledge score of study subjects was 11.9(±3)[table 3].One hundred ninety seven(48.0%) study participants had good knowledge about dietary control of DM and 213(52%) had poor knowledge score [table 3] .There was significant association between knowledge and religion. Muslims had knowledge regarding dietary control of diabetes 0.43(0.21-0.86) times that of Orthodox Christians. Significant association was also seen between knowledge and educational status and occupation. Participants in grade 9-12 were 2.21(1.05-4.65) times and those with certificate and above are 18.27times (95%CI 4.46-74.88**)** knowledgeable than illiterates. Merchants are 3.05(1.04-8.98) times more knowledgeable compared to participants with no job. Age, sex, marital status, duration of diabetes had no significant association with Knowledge. Participants' knowledge showed no significant association with glycemic control. [Table 4]

Table 3. Respondents Level of Knowledge, Attitude and practice about dietary control of diabetes. Adama and Bushoftu hospitals,2011(n=410).

Variables	Good	Poor	Total	Mean(±SD)
	n (%)	n(%)	n(%)	
Knowledge	**197(48.0)**	**213(52.0)**	**410(100)**	**11.9(±3)**
Attitude	**203(49.5)**	**207(50.5)**	**410(100)**	**31.3(±3.6)**
Practice	**237(57.8)**	**173(42.2)**	**410(100)**	**8.6(±2.2)**

Table 4.Factors affecting knowledge about dietary control of Diabetes, Adama and Bushoftu hospitals,2011.

	Knowledge			
	Poor, n(%)	**Good, n(%)**	**COR(95%CI)**	**AOR(95%CI)**
Religion				
Orthodox Christian	137(48.2)	147(51.8)	1	1
Muslim	39(67.2)	19(32.8)	0.64(0.15-2.75)	0.43(0.21-0.86)*
Protestant	34(56.7)	26(43.3)	0.29(0.06-1.35)	0.60(0.32-1.15)
Catholic	3(37.5)	5(62.5)	0.46(0.10-2.10)	0.91(0.19-4.38)
Educational status				
Illiterate	39(54.9)	32(45.1)	1	1
Read and Write only	41(62.1)	25(37.9)	0.74(0.38-1.47)	0.77(0.37-1.60)
Grade 1-8	82(64.1)	46(35.9)	0.68(0.38-1.23)	0.70(0.36-1.34)
Grade 9-12	48(42.9)	64(57.1)	1.63(0.89-2.96)	2.21(1.05-4.65)*
Certificate and above	3(9.1)	30(90.9)	12.19(3.40-43.65)***	18.27(4.46-74.88)***
Occupation				
No job	41(67.2)	20(32.8)	1	1
Housewife	57(52.8)	51(47.2)	1.83(0.95-3.53)	1.90(0.95-3.79)
Civil servant	35(45.5)	42(54.5)	2.46(1.22-4.94)	1.06(0.44-2.52)
Retired	15(30.0)	35(70)	4.78(2.13-10.72)	3.98(1.67-9.46)
Daily laborer	26(76.5)	8(23.5)	0.63(0.24-1.64)	0.73(0.27-1.99)
Merchant	13(50.0)	13(50.0)	2.05(0.80-5.23)	3.05(1.04-8.98)*
Student	9(64.3)	5(35.7)	1.14(0.34-3.85)	1.33(0.35-5.13)
Others	17(44.7)	21(55.3)	2.53(1.10-5.83)	1.80(0.71-4.58)
Income in Birr				
<500	91(53.2)	80(46.8)	1	1
≥500	78(45.3)	94(54.7)	1.37(0.90-2.10)^	1.10(0.66-1.83)

***p<0.05 **p<0.01 ***p<0.001 ^ p<0.2**

Binary logistic regression was used to analyze the data

COR:-crude odds ratio

AOR: - adjusted odds ratio. Adjustment was done for major sociodemographic factors such as age, sex, educational status, occupation and income.

5.4. Attitude towards dietary control of diabetes.

The mean (±SD) Attitude score of study subjects is 31.3(±3.6)[Table 3].About half(49.5%) of study subjects have good attitude towards dietary control of diabetes. Significant association is observed between attitude and educational level and income of study subjects. Having higher educational status (certificate and above) is preventive of having positive attitude [AOR 0.12, 95%CI 0.03-0.49] compared to those who are illiterate. Participants with monthly income of more than 500birr had increased tendency of having good attitude when compared to those with less than 500birr (AOR 2.12, 95%CI 1.15-3.91 and P<0.05). Age, sex**,** DM duration and DM association membership showed crude association but when adjusted for sociodemographic characterstice the association disappeared. [Table 5]

Table 5. Factors affecting Attitude about dietary control of Diabetes, Adama and Bushoftu hospitals, 2011.

	Attitude			
	Poor, n (%)	**Good, n (%)**	**COR(95%CI)**	**COR(95%CI)**
Educational status				
Illiterate	41(57.7)	30(42.3)	1	1
Read and Write only	35(53.0)	31(47.0)	1.21(0.62-2.38)	1.18(0.50-2.80)
Grade 1-8	55(43.0)	73(57.0)	1.81(1.01-3.26)	1.51(0.68-3.35)
Grade 9-12	47(42.0)	65(58.0)	0.89(1.04-3.45)	1.17(0.48-2.83)
Certificate and above	29(87.0)	4(12.1)	0.19(0.06-0.59)	0.12(0.03-0.49)**
Income in birr(n=343)				
<500	103(60.2)	68(39.8)	1	1
≥500	74(43.0)	98(57.0)	2.01(1.31-3.08)**	2.12(1.15-3.91)*
Age group (years)				
18-27	12(46.2)	14(53.8)	1	1
28-37	23(42.6)	31(57.4)	1.16(0.45-2.96)	0.87(0.26-2.93)
38-47	30(36.1)	53(63.9)	1.51(0.62-3.69)	1.03(0.31-3.51)
48-57	66(53.2)	58(46.8)	0.75(0.32-1.76)	0.63(0.19-2.11)
58-67	50(64.1)	28(35.9)	0.48(0.19-1.18)^	0.59(0.17-2.09)
≥68	26(57.8)	19(42.2)	0.63(0.24-1.66)	0.69(0.17-2.62)
Sex				
Male	109(47.6)	120(52.4)	1	1
Female	98(54.1)	83(45.9)	0.77(0.52-1.14)^	0.97(0.55-1.72)
DM Duration				
<1 yr	24(45.3)	29(54.7)	1	1
1-5yrs	66(43.4)	86(56.6)	1.08(0.58-2.02)	1.17(0.59-2.32)
5-10yrs	43(47.8)	47(52.2)	0.91(0.46-1.79)	1.00(0.47-2.13)
>10yrs	74(64.3)	41(35.7)	0.46(0.24-0.89)*	0.70(0.33-1.51)
DM association membership				
No	69(45.4)	83(54.6)	1	1
Yes	138(53.5)	120(46.5)	0.72(0.48-1.08)^	0.84(0.51-1.39)

*p<0.05 **p<0.01 ***p<0.001 ^p<0.2

Binary logistic regression was used to analyze the data

COR:-crude odds ratio

AOR: - adjusted odds ratio. Adjustment was done for major socio-demographic factors such as age, sex, educational status, occupation and income.

5.5. Practice on dietary control of diabetes.

The mean (±SD) practice score of study subjects is 8.6(±2.2)[table 3]. Two hundred thirty seven (57.8%) study participants had good practice on dietary control of DM whereas 173(42.2%) had poor practice [Table 3]. Practice had significant association with educational status and occupation of study subjects. Participants in grade 1-8 and grade 9-12 were 3.27(1.44-7.42) times and 3.00(1.21-7.47) times good practice when compared to those who were illiterates. When we look at the association with occupation, study subjects who were retired practices dietary control of diabetes 2.7(1.03-7.06) times those with no job [Table 6]

Table 6. Factors affecting practice on dietary control of Diabetes, Adama and Bushoftu hospitals, 2011.

	Practice			
	Poor, n(%)	**Good, n(%)**	**COR(95%CI)**	**AOR(95%CI)**
Educational status				
Illiterate	46(64.8)	25(35.2)	1	1
Read and Write only	35(53.0)	31(47.0)	1.63(0.82-3.24)	2.08(0.85-5.09)
Grade 1-8	46(35.9)	82(64.1)	3.28(1.79-6.01)***	3.27(1.44-7.42)**
Grade 9-12	33(29.5)	79(70.5)	4.41(2.34-8.31)***	3.00(1.21-7.47)*
Certificate and above	13(39.4)	20(60.6)	2.83(1.21-6.63)*	1.35(0.43-4.23)
Occupation				
No job	36(59.0)	25(41.0)	1	1
House wife	50(46.3)	58(53.7)	1.67(0.89-3.15)	1.30(0.53-3.18)
Civil servant	19(24.7)	58(75.3)	4.40(2.12-9.10)***	2.12(0.75-6.09)
Retired	21(42)	29(58)	1.99(0.93-4.25)	2.70(1.03-7.06)*
Daily laborer	17(50.0)	17(50.0)	1.44(0.62-3.35)	0.85(0.29-2.51)
Merchant	5(19.2)	21(80.8)	6.04(2.01-18.18)**	4.38(0.90-21.36)
Student	8(57.1)	6(42.9)	1.08(0.33-3.50)	0.85(0.18-3.95)
Others	16(42.1)	22(57.9)	1.98(0.87-4.50)	1.62(0.54-4.88)
Income in Birr				
<500	79(35.9)	141(64.1)	1	1
≥500	94(49.5)	96(50.5)	2.45(1.60-3.88)***	1.38(0.76-2.50)

*p<0.05 **p<0.01 ***p<0.001

Binary logistic regression was used to analyze the data

COR:-crude odds ratio

AOR: - adjusted odds ratio. Adjustment was done for likely confounders (major socidemographic factors such as age ,sex,educational status ,occupation and income).

5.6 .Focus group discussion and in-depth interview with diabetic patients to explore compliance to dietary control of diabetes.

Two FGDs and Five in-depth interviews were conducted .A total of fourteen participants were included in FGD (seven at each session), Age of participants ranged from 23years to 80years and there is 1:1 male and female sex distribution. Five in-depth interviews were conducted. There were 1 male and 4 female participants within age of range of 40 to 80years.

The responses of the FGD and in-depth interview are organized in to one theme, dietary compliance.

Dietary compliance.

Almost all participants claimed that they try to be compliant on dietary advice they got from their treating physician but there were a lot of obstacles to do so. Some of the obstacles they mentioned are summarized below.

Most participants agree that lower economic status has a serious impact on dietary compliance. Though health care providers advise participants to prepare their meals from different food items in different composition and not to have similar food at different meal times repeatedly, inability to afford different food items made them violate the advice they were given…***''the disease goes with our living standard'' ……..…''though my families know what I have to eat, they can't afford to provide me so I eat whatever is available at home''***

The second reason most participants agree on for dietary noncompliance was other family members' lack of knowledge about diabetes. Because of not understanding the consequence of eating everything, other family members' urge patients to eat every food item……***''what will happen to you, eat it***".

Social occasions such as public holidays and weddings, which are very frequent in Ethiopian setting,were also mentioned by some participants as a cause of noncompliance. In this occasion food is prepared to serve all guests and no special food will be prepared for those with diabetes and it's not possible to refuse to eat this food……***'' it's a must to eat the prepared food and it's also not possible not to come to the invitation''……..***other attendants of the occasion also push diabetic patients to eat what is served***…….. ''take this thing it's ok take it, it is'Tsebel' it will not harm you."***

The other important thing some participants raised as a cause of noncompliance was addiction to alcohol. Although repeated advice is given, some patients couldn't stop drinking alcohol because of strong addiction they have.

One concern participants raised is that some health care providers are focusing just prescription of medications neglected health education part of which one is dietary advice.

6. Discussion

The mean age of respondents was comparable to the mean age of 51±12.2years found in a study done in united Arab Emirate to assess dietary practice among diabetic patients(4). Educational status of study participants showed 17.3% illiterates in contrast to only 8% certificate level and above .This high level of illiteracy needs to be addressed if we need to have better diabetic care these illiterate people might not be able to understand any written teaching materials used for health education.

Forty two respondents have monthly income of less than 500birr, 43% have 500 birr or above and the rest 14.3% said that they don't know their monthly income. Some of the reasons they gave were being supported by other family members (e.g. child), monthly income significantly variable from one month to another b/c of market changes, and income depending on the availability of daily jobs.

Despite the fact that 99.5% of study participants being on antidiabetic medication, only 27.8% of participants had good glycemic control. This is an alarming condition to the quality of care patients were receiving. This may be because of low attention given by health care providers on other components of diabetic care such as repeated dietary counseling and physical exercise. This can be supported with a study done in New Zealand patients who showed unsatisfactory glycaemic control despite intensive drug treatment but glycaemic control significantly improved when carefully tailored dietary advice supplemented.(6) ensuring diabetes patients good blood sugar levels is crucial in avoiding both short term and long-term complications of the disease.

Although dietary control has a major role on diabetes management, only 48% of respondents had good knowledge on dietary control of diabetes. This low level of knowledge despite the fact that the majority (87.1%) of respondents having diabetes for more than one year and hospital visit at least once shows a lot should be done on educating diabetic patients on the role diet plays on their disease control.

Knowledge had significant association with Educational status of respondents. Higher educational status of the respondent increases their knowledge level. Respondents having certificate and above had 18 fold increased knowledge level when compared to those who are illiterate. This could be attributed to more educated respondents having higher chance of exposure to different IC materials and also because of the education they receive at school. The association religion had with knowledge. It was also noted that occupation of respondents had an association with knowledge. Merchants had better knowledge than those with no job, which could be a result of their exposure to people from different walks of life because of their job increasing their access to information exchange. Knowledge level of respondents showed no significant association with Glycemic control in contrast to a study done in Nigeria hospital to assess dietary knowledge, practice and control in type-2 DM which showed significantly higher mean knowledge scores association with better glycemic control. Knowledge showed no significant association with Sex, age, ethnic group, income and DM duration.

It's noted that about half of respondents didn't have good attitude towards dietary control of diabetes. The condition was even worse in those with higher educational status, i.e 87% of respondents with certificate and above didn't have good attitude towards dietary control of

diabetes. This may be a due to highly educated people feel bad of having to eat different food to the general population because of the position they give themselves in the society.

Attitude has a direct relationship with income. Participants with monthly income of ≥500birr had better attitude when compared to those with an income of <500 birr. This could be because participants with better income may think they can afford to have variety of food items compatible with their disease any time they need it.

About 57.8%study subjects have good practice on dietary control of diabetes. Though it was relatively better than knowledge and attitude level of participants, it was still low. A study done in Saudi to assess KAP women towards diabetes mellitus showed 16% were not at all following the dietary plan.(20).Educational status and occupation of study subjects had significant association with practice like that of knowledge. Having attended school had good impact on practice of participants when compared to being illiterate. This could be because of the role education plays in increasing awareness of participants about diets role in their diabetes management. Looking at the association practice had with occupation, retired participants had better practice when compared to those with no job (AOR 2.70, 95%CI 1.03-7.06, $p<0.05$).This better practice could be explained by retired participants might have better contact with different people because of their past job which can be a good media for experience sharing when compared to those with no job. On the other hand they have more free time to prepare their food according to their need.

In this study practice didn't have significant association with glycemic control like that of knowledge and attitude which is in contrast to what most studies show.

Knowledge, attitude and practice didn't show significant association with being a member of diabetic association . As majority (62.9%) of participants was members of Diabetic association, this could have been used for awareness creation and any group intervention such as dietary counseling.

It was seen that lower economic status was thought to be a major obstacle for dietary compliance and the main reason given was difficulty of affording different food items to have balanced diet. Although the role of money in having different food items is not denied, it's possible to have different food items just by buying small amount from each food item advised to be taken by diabetics and preparing meals according to caloric requirement instead of investing all the money to buy large amount of single item.

Compliance to dietary advice is also determined by social and family life. Especially in the Ethiopian setting where there is strong family and social interaction and a lot of people living together, diabetics don't get much support rather they are discouraged to comply with dietary advice .Preparation of different meals for those with the disease becomes difficult and also patients don't feel motivated to eat separately from others and ultimately don't follow the recommended diet. There are a lot of reasons why others, such as family members and friends are not providing the needed support but the main one is lack of awareness of the community about diabetes in general. This was also observed in a study done in Latin America to see beliefs of diabetic patients about nutritional therapy and its influence on their compliance with treatment (21).

Addiction has a deleterious effect on compliance. Even if the diabetic patient knows the impact of the drugs/stimulants (e.g. alcohol) he/she is taking on diabetes, it couldn't be easy to quiet without continuous counseling support from health care providers.

Strength of this study is since researches on assessment of KAP of diabetic patients about dietary control of diabetes are lacking, it gives some insight about the situation and may help in initiating further studies. Both qualitative and quantitative methodologies were used .Data was collected from primary source which may increase the precision and reliability of the study findings. Interviews/ FGD amplified the real picture.

Limitations of this study were that it was conducted only FBS was used to assess glycemic control which might not give fairly accurate picture without being combined with HbA1C.

7. Conclusion

This study showed low level of knowledge, attitude and practice of diabetic patients about dietary control of diabetes. Educational status, occupation, income and religion are the major factors associated with KAP of participants. Taking into consideration the fact that this study was done in hospital setup where patients are assumed to have better awareness about health related issues it's more likely that KAP level will be much lower if community based study was done. The compliance of diabetic patients is not satisfactory because of a lot of socioeconomic factors.

8. Recommendation:

Since diabetes can be managed well with adequate patient involvement, improving their knowledge, attitude and practice about the role diet plays in their disease management and addressing challenges to noncompliance should be prioritized. Treating health care providers need to follow holistic approach of diabetic care than only focusing on medication.

As it was seen above knowledge and practice on dietary control of diabetes had strong association with educational status of patients. Formal educational opportunities have to be made accessible and affordable for diabetics and also patients need to be encouraged to attend it.

Health education in the form of individual and group education should be given for diabetics when they come to health institute by means treating clinicians and diabetes associations in the area. Large scale awareness creation program for the general public needs to be designed

As diabetes is a chronic disease imposing economic burden for its care including dietary control ,improving economic status of diabetics by creating different job opportunities where by their income will improve should also be given due attention.

Finally researches with wider scope and much larger sample size are recommended to confirm finding and explore relevant features.

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9. Annexes

Annex1: English Consent Form

Consent form to certify the respondent's agreement for interview on

Assessment of Knowledge, Attitude and Practice of diabetic patients on dietary control of Diabetes.

01. Name of health facility_____

02. Questionnaire identification number_____

INTRODUCTION

My Name is _____I am a researcher from ACIPH-UoG. I will ask you to tell me whether you agree or disagree to participate in the study after knowing the purpose and general condition of the study which I am going to read for you now.

Consent form

The purpose of this study is to assess the knowledge, attitude and practice of diabetic patients on dietary control of diabetes. The study will be conducted through interview. You are selected to be one of the participants in the study. You have the full right to participate or not to participate in the study if you are not willing or to quite your participation in the study at any time if you want. To ensure confidentiality of information, your name will not be used during data collection instead code will be used.

Your study participation status has no impact on the service you and your family members get in the facility.

Are you willing to participate in the study?

1. Yes
2. No

Thank you very much.

If the study subject is willing to participate, start the interview.

03. Interviewer who certified that the informed consent has been taken verbally from the study participants.

a. Name_____ signature_____

b.Date_____month_____2003E.C

04. Result

a.completed

b.not volunteer

c.Partially completed

06. Checked by:Name_____signature_____Date_____

NB.

1. No need of forcing the patients to be included in the study.
2. Please register the age and sex of study subject who refuse to participation in the study.

Annex 2. English Version Questionnaire.

Part One: Socio-Demographic Variables

No	Questions	Coding classifications	Remark
101	How old were you at your last birthday?	---------Years (full yrs)	
102	Record sex of the patient	Male ----------1 Femal----------2	
103	What is your religion?	Muslim----------1 Orthodox----------2 Protestant ----------3 Catholic ----------4 Other (specify) ----------5 No response----------99	
104	To which ethnic group do you belong?	Oromo---------1 Amhara-------2 Gurage--- ----3 Siliti- --------4 Other (specify) -------5 No response---------99	
105	What is your current marital status?	Married in union--------1 Never married --------2 Divorced --------3 Widowed-------4 Unmarried couples -----5 Too young---- ---------6 No response----------99	
106	What is your current educational status?	-------grade completed Read and write----------1 Illiterate ----------2 No response --------99	
107	What is your current occupation?	Civil/domestic servant -----1 House wife ----------2 Daily laborer ---------3 Hotel worker ----------4 Student----------5 Merchant---------- 6 No job - ---------- 7 Others(specify)----------8 No response----------99	
108	What is your family's average household Income per month?	----------Birr ETH No income ------1 I don't know ---88 No response ----99	

Part 2.Health profile

No	Questions	Coding classification	Remark
109	How long ago were you diagnosed to be diabetic?	<1year----------1 1-5years----------2 5-10years----------3 >10years----------4 Don't know-------88	
110	How long have you been on medication for DM?	<1year----------1 1-2years----------2 2-5years----------3 >5years----------4 Don't know-------88	If the answer is 5, skip to Q113.
111	What are the drugs you are taking currently?	Glibenclamide----------1 Metformine----------2 Insulin injection-------3 Glibenclamide & Metformine--4 Metformine &insulin inj--------5 Others----------6	
112	What are the drugs you were taking at the time of diagnosis?	Glibenclamide----------1 Metformine----------2 Insulin injection-------3 Glibenclamide & Metformine--4 Metformine &insulin inj--------5 Others----------6	
113	Do you have history of any other chronic medical illness?	Yes----------1 No----------2	If the answer is 2,skip to Q115
114	If so, what kind of chronic illness?	Hypertension----------1 Dyslipidemia----------2 Cardiac disease---------3 Renal disease----------4 Liver disease----------5 Others(specify)----------6	
115	Are you a member of any Diabetic association?	Yes----------1 No----------2	
116	Record the last three follow up blood sugar measurements.	------mg/dl--------mg/dl-----mg/dl	

Part 3.knowledge on dietary control of diabetes

No	Questions	Coding classification	Remark
117	Can you name some of the things that may lead to a person developing diabetes?	Family history ----------1 Eating too much fat and sugar--2 Overeating----------3 Alcohol----------4 Cigarette Smoking----------5 Don't know----------88 No response----------99	
118	What are the treatment options of diabetes mellitus?	Orally taken tablets----------1 Injection/insulin therapy------2 Exercise ----------3 Dietary management----------4 Don't know----------88	
119	What can be the symptoms of poorly controlled diabetes mellitus?	Passing lots of urine----------1 Excess thirst----------2 Tiredness----------3 Loss of Appetite----------4 Weight loss----------5 Don't know----------88	
120	One of the methods used to prevent type 2 Diabetes is Life style modification.what does it mean?	Exercise --------1 Dietary modification-------2 Weight reduction------3 Don't know-------88 No response-----99	
121	Should a patient with diabetes mellitus follow a controlled and planned diet?	Yes----------1 No----------2	
122	What is the aim of dietary modification(time, type and amount)	To make blood sugar level normal/near normal-------1 To correct dyslipidemia----2 To control weight-----3 I don't know-------88 No response-----99	
123	Has a doctor or other health professional ever talked with you about your diet or eating habits?	Yes, with in the past 12 months--1 Yes, with in the past 3 years----2 Yes, 3 or more years ago--------3 I was not told----------4 Don't know/ Not sure----------5	
124	Diabetic patients are advised to take	40-60% carbohydrate(grains and fruites),10-20% proteins(meat,egg,fish),20-	

		30%fat,small amount vitamins and minerals-------1 10-20% carbohydrate(grains and fruits),40-60% proteins(meat,egg,fish),20-30%fat,small amount vitamins and minerals-------2 100% carbohydrate free-----3 I don't know-------88 No response-----99	
125	Which of the following food/drink is not advised to be taken by diabetic patients?	Freshly made orange juice-----1 Sugary drinks (tea, Soft drinks)--2 Pasta/Macaroni----------3 Injera with 'Wot'----------4 Don't know----------88	

Part 4.Attitude towards dietary control of diabetes

For each of the following questions we invite you to respond according to what best represent your view toward the statement presented in the question.

No	Questions	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Score
126	If diabetic patients feel well, they can eat whatever they like.(-)	**1**	**2**	**3**	**4**	**5**	
127	Diabetic patients will get sicker if they stop to follow dietary advice.(+)	5	4	3	2	1	
128	Diabetes is a disease that causes health complications (+)	5	4	3	2	1	
129	Dietary control for the treatment of diabetes will prevent or delay diabetes complications (+)	5	4	3	2	1	
130	For diabetic patients it is difficult to follow dietary advice at work (-)	**1**	**2**	**3**	**4**	**5**	
131	Diabetic patients have problems complying with dietary advice due to lack of money. (-)	**1**	**2**	**3**	**4**	**5**	

132	Physicians and diabetic patients should agree with the diabetes management.(+)	5	4	3	2	1	
133	Do you agree with your diabetes treatment? (+)	5	4	3	2	1	

Part 5.practice of dietary control of diabetes

No	Questions	Coding classification	Remark
134	Which one of the following statements best applies to you?	I currently eat whatever I like and I do not intend to change my life style in the next 3 months------1 I currently do not follow diabetic diet but I intend to start to do so in the next 3 months-------2 I currently do follow diabetic diet but not regularly--3 In the past 3 months I am strictly following diabetic diet---4 I currently follow diabetic diet and done so for longer than 3 months----------5	
135	Have you tried to lose weight in the past?	Yes, many times----------1 No, never ----------2 Yes, occasionally ----------3 No response----------99	
136	Some of the following may be barriers to you being more conscious of your dietary habit. For each, tell me whether it is not a barrier, somewhat of a barrier, of very much a barrier? a)Not a barrier b)Somewhat of a barrier c)Of very much a barrier	Other priorities----------1 Lack of time----------2 Work----------3 Cost of treatment----------4 Feeling tired to cook a different dish than the usual---5 Lack of awareness----------6	
137	Which one is the main component of a typical diabetic diet in the area you are living?	Meat----------1 Cereals----------2 Sweets (sugar, chocolate, ice cream...)----------3 'Kocho'----------4 Injera----------5 Don't know----------88	
138	What do you eat frequently?	Sweets (sugar, honey, cake, soft drinks)-----1 Fat(white of meat, butter, oil etc…)----2	

		Meat, chicken, fish,---3 Vegetables-----4 Beans, Corn, rice, pasta, macaroni, teff---5 No response-----99	
139	Where do you have your meals regularly?	At home----------1 In a restaurant----------2 In a camp site with other colleagues----------3	
140	Do you think eating outside your home affects your adherence to dietary control of your DM?	Yes---------- 1 No----------2 Don't know--------88	
141	Do you use any diabetic dietary manual as a reference to prepare your daily meal?	Yes, I do use----------1 Yes, but only occasionally-----2 No, I don't use----------3 No, I don't know the existence of such a manual-----4 Manual not available----------5	If the answer is 3,4or 5, skip to Q143.
142	Where did you get the manual from?	From health centre/Hospital---1 From book store----------2 From Internet sources----------3 From a friend----------4 From DM association ----------5 Other----------6	
143	Have you ever visited a dietitian	Yes ,once----------1 Yes ,repeatedly----------2 Not at all----------3 No dietitian is available--------4	

That is the end of our interview

Thank you very much for taking your time and answering our questions.

Annex 3. Interview guide for FGD

Theme 1.Introduction

My name is_____ and this is my colleague called_____.We came from ACIPH-UoG and we are here to do a study on dietary management of diabetes.

We would like to ask you a few questions about diabetes, its management and factors affecting compliance to dietary control. We would like to tape record our discussion if you let us do so. All the information you will give us today will be kept confidential.

May we have your permission to tape record the discussion now?

During the discussion we need to speak loudly so that others can listen to what we say easily, freely express our feelings and respect others idea.

Now we will start our discussion by each of you introducing yourselves and your occupation.

Theme 2 Warm up questions

Now we would like to hear what you know about diabetes mellitus.

1. Tell us what you know about diabetes.

2. Tell us about the causes of diabetes.

3. What are the management options of diabetes?

Probes—what do you mean by this? Can you further explain it? Anything you want to add more.

Theme 3. Dietary control of diabetes.

Now we would like to ask you about dietary control of diabetes.

1. Tell us what you know about dietary control of diabetes.

2. What are the benefits of dietary control of DM?

Probes-can you clarify it more, would you give an example.

Theme 4. Compliance of diabetic patients to dietary control of DM.

1. Tell us the way you practice dietary control of DM

2. What are the factors affecting compliance to dietary advice.

At this point, is there anything we have forgotten to ask or anything you would like to add before we finish up this session?

Thank you very much for your participation. All your comments will be of great value to us.

Annex 4. Semi structured Interview Guide for Indepth Interview.

1.Introduction

My name is_____ .

I came from ACIPH-UoG and I am here to do a study on dietary management of diabetes.

I would like to ask you a few questions about diabetes, its management and factors affecting compliance to dietary control. I would like to tape record our discussion if you let me do so.

All the information you will give me today will be kept confidential.

May I have your permission to tape record the interview now?

1. Tell me what you know about diabetes.
2. Tell me about the causes of diabetes.
3. What are the management options of diabetes?
4. Tell us what you know about dietary control of diabetes.
5. What are the benefits of dietary control of DM?
6. How do you try to control your DM?
7. How do you practice dietary control of DM?
8. What are the factors affecting compliance to dietary advice?
9. Are you a member of any DM association?

Annex-5.Amharic concent form

በአዲስ ኮንቲነንታል እንስቲትዩት ኦፍ ፐብሊክ ሄልዝ እና የጎንድር ዩኒቨሪሰቲ የህብረተሰብ ጤና ትምህርት ዘርፍ፡

ከቃለ መጠይቅ በፊት የተሳታፊዎችን ፈቃደኝነት ማረጋገጫ ቅጽ

ይህ መጠይቅ የስኳር በሽ ን አመጋገብን በማስተካከል ስለመቆጣጠር ለማጥናት የተዘጋጀ ነው፡፡

መለያ

01) **የህክምናው ማዕከል ስም----------**

02) **የመጠይቁ መለያ ቁጥር ----------**

መግቢያ

ስሜ ---------- እባላለሁ፡፡ እዚህ የመጣሁት ከአዲስ ኮንቲነንታል እንስቲትዩት ኦፍ ፐብሊክ ሄልዝ እና በጎንድር ዩኒቨሪሰቲ ነው. የመጣሁትም ጥናት ለማድረግ ነው፡፡ ከዚህ በመቀጠል ስለጥናቱ አላማና ጠቅላላ ሁኔ አብራራልዎታለሁ፡፡ በጥናቱ ላይ ለመሳተፍ መስማማት አለመስማማትዎን ያረጋግጡልኛል፡፡

የስምምነት ማረጋገጫ

የጥናቱ ዋና አላማ የስኳር በሽ ህመማን ስለስኳር በሽታን በአመጋገብ መቆጣጠር ያላቸውን እውቀት፣ አስተሳሰብ እና አተገባበር ማጥናት ነው፡፡

እርስዎ በዚህ ጥናት ተሳ ፊ እንዲሆኑ ተመርጠዋል፡፡ ይህ ጥናት የሚካሄደው በቃለ መጠይቅ ሲሆን በቃለ መጠይቁ ላይ ስም አይመዘገብም፡፡ በቃለ መጠይቁ የሚሰጡት መረጃ ሁሉ በሚስጥር ተይዞ ለጥናቱ አገልግሎት ብቻ የሚውል ነው፡፡

የዚህ ጥናት ተሳ ፊዎች የሚለዩት በሚስጥር ቁጥር በመሆኑ ስምዎን ማወቅ አያስፈልገንም፡፡ እርስዎ በዚህ ጥናት ላይ የመሳተፍ፤ ያለመሳተፍ ወይም በማንኛውም ወቅት ቃለ መጠይቅን

የማቋረጥ ሙሉ መብት አለዎት፡፡ በጥናቱ መሳተፍ አለመሳተፍዎ እርስዎም ሆኑ ሌላ የቤተሰብዎ አባል ከጤና ድርጅቱ በሚያገኙት አገልግሉት ላይ ምንም አይነት ተፅዕኖ አያደርግም፡፡

በጥናቱ ላይ ለመሳተፍ ፈቃደኛ ነዎት?

1/አዎ 2/ አይደለሁም

አመሰግናለሁ ::

የተሰጠው መልስ አዎ ከሆነ መጠይቁን ይቀጥሉ፡፡

03) ፈቃደኛነቱን ያረጋገጠው መረጃ ሰብሳቢ

ሀ/ ሙሉ ስም ---------- ፊርማ ----------

ለ/ ቀን ---------- ወር ----------2003 ..

04) ውጤት

ሀ/ የተጠናቀቀ

ለ/ ተጠያቂው ፈቃደኛ አይደለም

ሐ/ በከፊል የተመለሰ

መ/ ሌላ ካለ ይገለፅ ----------

05) የተቆጣጣሪወ ሰም----------ፊርማ----------ቀን----------

ማሳሰቢያ

ግለሰቦችን በመጠይቁ ለማሳተፍ ምንም አይነት ማስገደጃ ወይም ጫና ማድረግ አያስፈልግም፡፡

በጥናቱ ለመሳተፍ ፈቃደኛ ካልሆነ/ች የግለሰቡን ድሜ ና ፆታ ይመዝገቡ፡፡

Annex 6 .structured Amharic version Questionnaire

ክፍል አንድ - ስለማህበራዊና ስለሕዝባዊ ሁኔታ የሚያመለክቱ ጥያቄዎች፡፡

ተ.ቁ	ጥያቄዎች	መልስ ሊሆኑ የሚችሉ ዝርዝሮች	አስተያየት
101	እድሜዎ ስንት ነው ?	------አመት /በሙሉ አመት ይገለፅ	
102	የተጠያቂውን ፆ ይመዝግቡ	ወንድ .....1 ሴት 2	
103	ሐይማኖትዎ ምንድን ነው ?	ሙስሊም .....1 ኦርቶዶክስ.....2 ፕሮቴስ ንት .....3 ካቶሊክ .....4 ሌላ ካለ ይገለፅ.....5 መልስ የለም 99	
104	ብሔረዎ ምንድን ነው ?	ኦሮሞ .....1 አማራ .....2 ጉራጌ .....3 ስልጤ .....4 ሌላ ካለ ይገለፅ.....5 መልስ የለም 99	
105	በአሁኑ ወቅት የጋብቻ ሁኔ ዎ እንዴት ነው ?	ያገቡ ..... 1 ያላገቡ ..... 2 የተፋቱ ..... 3 ባል/ሚስት የሞተባወት(በት) ....4 ያልተጋቡ ጥንዶች .....5 ለጋብቻ ያልደረሱ .....6 መልስ የለም 99	
106	እስከ ስንተኛ ክፍል ተምረዋል ?	------ ክፍል ያጠናቀቁ ማንበብና መፃፍ የሚችል....1 ማንበብና መፃፍ የማይችል..2 መልስ የለም 99	
107	በአሁኑ ወቅት ያሉበት የስራ አይነት ምንድን ነው?	የመንግስት ሠራተኛ .....1 የቤት እመቤት .....2 የቀን ሠራተኛ .....3 የሆቴል ሠራተኛ .....4 ተማሪ.....5 ነጋዴ.....6 ስራ የሌለው.....7 ሌላ ካለ ይገለፅ.....8 መልስ የለም 99	
108	ጠቅላላ የቤተሰብዎ የወር ገቢ ስንት ነው ?	------የኢት/ብር ገቢ የሌለው .....1 አላውቅም.....88 መልስ የለም.....99	

ክፍል ሁለት- ስለጤንነት ሁኔታ

ተ.ቁ	ጥያቄዎች	መልስ ሊሆኑ የሚችሉ ዝርዝሮች	አስተያየት
109	የስኳር በሽታ እንዳለቦት ከታወቀ ስንት ጊዜ ሆነው?	1 አመት.....1 1 — 5 አመት.....2 5 — 10 አመት.....3 > 10 አመት.....4 አላውቅም 88	
110	የስኳር መድሃኒት መውሰድ ከጀመሩ ስንት ጊዜ ሆነው?	< 1 አመት.....1 1 — 2 አመት.....2 2 — 5 አመት.....3 >5 አመታት.....4 መድሃኒት መውሰድ አልጀመርኩም-----5 አላውቅም 88	መልሱ 5 ቁጥር ከሆነ ወደ ጥያቄ 113 ይሂዱ
111	አሁን የሚጠቀሙት የስኳር መድሃኒት ምንድነው?	ግሊቤንክላማይድ.....1 ሜትፎርሚን.....2 ኢንሱሊን መርፌ.....3 ግሊቤንክላማይድ እና ሜትፎርሚን....4 ሜትፎርሚን እና ኢንሱሊን መርፌ....5 ሌላ ካለ ይጥቀሱ.....6	
112	የስኳር በሽታ እንዳለቦት በታወቀ ጊዜ ይጠቀሙት የነበረው መድሃኒት ምንድነው?	ግሊቤንክላማይድ.....1 ሜትፎርሚን.....2 ኢንሱሊን መርፌ.....3 ግሊቤንክላማይድ እና ሜትፎርሚን....4 ሜትፎርሚን እና ኢንሱሊን መርፌ....5 ሌላ ካለ ይጥቀሱ.....6	
113	ሌላ የውስጥ ደዌ ችግር አለቦት ወይ?	አዎ.....1 የለም.....2	መልሱ 2 ቁጥር ከሆነ ወደ ጥያቄ 115 ይሂዱ
114	ካለቦት ምን እንደሆነ ቢነግሩን?	የደም ግፊት.....1 የሰውነት ቅባት መብዛት.....2 የልብ በሽታ.....3 የኩላሊት በሽታ.....4 የጉበት በሽታ.....5 ሌላ ካለ ይገለፅ.....6	
115	የስኳር በሽተኞች ማህበር አባል ኖት?	አዎ.....1 አይድለሁም----------2	
116	የመጨረሻዎቹን ሶስት ክትትል የስኳር ምርመራ ዉጤቶች መዝግብ	_____mg/dl,_____mg/dl,_____mg/dl	

ክፍል ሶስት- ውቀትን የሚመለከቱ ጥያቄዎች

የስኳር በሽታን በአመጋገብ ማስተካከል ስለመቻሉ

ተ.ቁ	ጥያቄዎች	መልስ ሊሆኑ የሚችሉ ዝርዝሮች	አስተያየት
117	የስኳር በሽታ ከሚያመጡ ነገሮች ጥቂቶቹን ሊነግሩኝ ይችላሉ?	በቤተሰብ ይተላለፋል-------1 ቅባትና ጣፋጭ የበዛባቸው ምግቦችን በመመገብ----------2 ከመጠን በላይ በመመገብ-----3 አልኮል መጠጦችን በመውሰድ--4 ሲጋራ ማጨስ ------5 አላውቅም----------88 መልስ የለም----------99	
118	የስኳር በሽታ ህክምና አማራጮች ምን ምን ናቸው?	በአፍ የሚወሰዱ ኪኒኖች--------1 በመርፌ መውጋት ----------2 የሰውነት እንቅስቃሴ ማድረግ----3 ሁሉም ----------4 አላውቅም ----------88	
119	በትክክል ያልታከመ የስኳር በሽታ ምልክቶች ምን ምን ናቸው?	ሽንት ሽንት ማለት----------1 ከመጠን ያለፈ ውሃ ጥማት--------2 ድካም----------3 የምግብ ፍላጎት መቀነስ ----------4 የክብደት መቀነስ ----------5 አላውቅም ----------88	
120	የአይነት ሁለት የስኳር በሽታ ለመከላከል የሚጠቅሙ ዋና ዋና መንገዶች አንዱ የሆነው የአኗኗር ስልት ማስተካከል ምንን ያጠቃልላል	የአካል እንቅስቃሴ ማድረግ------1 የአመጋገብን ስልት ማስተካከል-----2 የክብደት መቀነስ--------3 አላውቅም ----------88 መልስ የለም----------99	
121	የስኳር በሽተኛ የተለየ የአመጋገብ ስርዓት መከተል አለበትን?	አዎ----------1 አይደለም----------2	
122	የአመጋገብን ስልት ማስተካከል(ሰአቱ፣አይነቱ፣መጠኑ) አላማዉ ምንድን ነዉ?	የበሽተኞችን የደም ስኳር መጠን ጤናማ ደረጃ/ጤናማ ደረጃ የቀረበ ለማድረግ-----1 በሰውነት ዉስጥ ያለውን የደም ቅባት መጠን ለማስተካከል---2 ክብደትን ለማስተካከል----3 አላውቅም ----------88 መልስ የለም----------99	
123	መከተል ስላለብዎ የአመጋገብ	አዎን ባለፉት 12 ወራት ውስጥ----1	

	ስርዓት በጤና ባለሙያ ተነግሮዎት ያውቃልን?	አዎን ባለፉት 3 ዓመታት ውስጥ---2 አዎን ከሶስት ዓመታት በፊት ------3 አይ አልተነገረኝም-----4 አላውቅም/ እርግጠኛ አይደለሁም--5	
124	የስኳር ህሙማን በቀን የሚመገቡት ምግብ የትኛው ቢሆን ይመረጣል?	40-60% ሃይል ሰጪ(ከእህል ዘር እና ከፍራፍሬ ከመሳሰሉት)፣ ከ10-20% ያህል ድረስ ፕሮቲን (ስጋ፣ እንቁላል፣ አሳ ወዘተ.)፣ 20-30% ቅባትነት ያላቸው ጥቂት ቫይታሚንና ሚኒራል ያላቸው---1 10-20% ሃይል ሰጪ(ከእህል ዘር እና ከፍራፍሬ ከመሳሰሉት)፣ ከ40-60% ያህል ድረስ ፕሮቲን (ስጋ፣ እንቁላል፣ አሳ ወዘተ.)፣ 20-30% ቅባትነት ያላቸው ጥቂት ቫይታሚንና ሚኒራል ያላቸው---2 100% ከሃይል ሰጪ ምግቦች ነፃ የሆነ--3 አላውቅም----------88 መልሱ አልተሰጠም---------99	
125	ከሚከተሉት ምግቦች /መጠጦች ውስጥ የስኳር በሽተኞች እንዲወስዱት የማይመከረው የትኛው ነው?	ትኩስ የብርቱካን ጭማቂ -------1 ስኳር ያላቸው መጠጦች(እንደ ሻይና ለስላሳ የመሳሰሉት)----------2 ፓስታ ወይም መኮሮኒ----------3 እንጀራ በወጥ ----------4 ሁሉም----------5 መልሱን አላውቅም ----------88	

ክፍል 4- የአመለካከት ጥያቄ

የስኳር በሽታን በአመጋገብ ማስተካከል ስለመቻሉ ከዚህ በታች ለተዘረዘሩት ጥያቄዎች የእርሶን አመለካከት በይበልጥ የሚገልፀውን መልስ ይመልሱልናል፡፡

ጋፋቁ	ጥያቄዎች	ወላልመስማማም	አልመስማማም	ገለልተኛ /	አግባብነት አለው	አግባብነት ወላለው	ሙሉ
126	የስኳር በሽተኞች የጤነኛነት ስሜት ከተሰማቸው የፈለጉትን ምግብ መመገብ ይችላሉ(-)	1	2	3	4	5	
127	የስኳር በሽተኞች የተሰጣቸውን የአመጋገብ ስርዓት መከተል ካቆሙ ጤንነታቸው ይታወካል(+)	5	4	3	2	1	
128	ስኳር በሽታ የተለያዩ የጤንነት ችግሮችን የሚያስከትል በሽታ ነው(+)	5	4	3	2	1	
129	ስኳር በሽታ ታማሚ የሆነን የአመጋገብ ስርዓት መከተል በስኳር በሽታ ምክንያት የሚመጡ የጤንነት ችግሮችን ያስወገወዳል ወይም ለረዥም ጊዜ እንዳይከሰቱ ያቆያቸዋል(+)	5	4	3	2	1	
130	ለስኳር በሽተኞች ስራቸው ቦታ አመጋገባቸውን ማስተካከል ይከብዳቸዋል(-)	1	2	3	4	5	
131	በስኳር በሽተኞች በገንዘብ እጦት ምክንያት አመጋገባቸውን ማስተካከል ያቅታቸዋል(-)	1	2	3	4	5	
132	ሀኪሞች እና የስኳር በሽተኞች ስለ በሽታው ህክምና መስማማት ይገባቸዋል(+)	5	4	3	2	1	
133	የስኳር ህክምናህ/ሽ ተስማምቶሃል/ሻል?(+)	5	4	3	2	1	

ክፍል 5- የአተገባበር ጥያቄዎች

ስኳር በሽታን በአመጋገብ ስለመቆጣጠር

134	**ከሚከተሉት አረፍተ ነገሮች ውስጥ እርስዎን የሚገልፀው የትኛው ነው?**	**በአሁኑ ሰዓት የፈለኩትን እመገባለሁ፣ይህን የአኗኗር ዘይቤም በሚመጡት 3 ወራት የመለወጥ ሀሳቡም ሆነ ፍላጎት የለኝም----1** **የስኳር በሽተኞችን አመጋገብ ስርዓት አልከተልም ነገር ግን በሚመጡት 3 ወራት ውስጥ የመከተል ሃሳብ አለኝ------2** **የስኳር በሽተኞችን የአመጋገብ ስርዓት እከተላለሁ ነገር ግን ሁሌም አይደለም -----3** **ካለፉት 3 ወራት ወዲህ በትክክል የስኳር በሽተኞችን የአመጋገብ ስርዓት እየተከተልኩ ነው ----------4** **በትክክል የስኳር በሽተኞችን የአመጋገብ ስርዓት መከተል ከጀመርኩ 3 ወራት አልፎኛል---------5**	
135	**ባለፉት ጊዜያት የሰውነትዎን ክብደት ለመቀነስ ሞክረው ያውቃሉን?**	**አዎን ለብዙ ጊዜያት---------1** **አይ በፍፁም ----------2** **አዎን፣አልፎ አልፎ ----------3** **መልስ የለም----------99**	
136	**ቀጥሎ የስኳር በሽተኞችን የአመጋገብ ስርዓት መከተል ሊያደናቅፉ ይችላሉ የሚባሉ ምክንያቶች ተዘርዝረዋል፣ ለእያንዳንዱ እባክዎን** **ሀ)እንቅፋት ነው** **ለ)መተወሰነ ደረጃ እንቅፋት ነው ወይም** **ሐ)እንቅፋት አይደለም** **በማለት ይንገሩኝ**	**ሌሎች የማስቀድማቸው ነገሮች ስላሉ -----1** **የጊዜ እጥረት ----------2** **በስራ ምክንያት ----------3** **የህክምናው ዋጋ ውድነት ----------4** **የተለየ ምግብ ማዘጋጀት አድካሚ ስለሆነ---5** **ሌላ ምክንያት ----------6** **የግንዛቤ እጥረት----------7**	
137	**ከሚከተሉት ውስጥ የአካባቢው ዓይነተኛ የምግብ ክፍል የትኛው ነው?**	**ስጋ ----------1** **ጥራጥሬ ----------2** **ስኳር ነክ (ስኳር፣ቸኮላታ፣አይስክሬም ወዘተ)---3** **ቆጮ ----------4** **እንጀራ ----------5**	

		መልሱ አልተሰጠም---------- 99	
138	እርሶ በአብዛኛው የሚመገቡት የትኛውን ነው?	ጣፋጭ ምግቦች (ስኳር፣ ማር፣ ኬክ፣ ለስላሳ)---------1 ቅባት (ጮማ፣ ቅቤ፣ዘይት ወዘተ)-------2 ስጋ፣ ዶሮ አሳ----------3 አትክልት እና ቅጠላ ቅጠሎች----------4 ባቄላ፣ በቆሎ፣ ሩዝ፣ፓስታ፣ መኮረኒ፣ ጤፍ----------5 መልሱ አልተሰጠም----------99	
139	በአብዛኛው የሚመገቡት የት ነው?	ቤት ውስጥ ----------1 ምግብ ቤት (ሬስቶራንት)----------2 ሜንስ ቤት----------3	
140	ከቤት ውጪ መመገብ የስኳር በሽተኞችን የአመጋገብ ስርዓት ለመከተል እንቅፋት ነውን?	አዎ ----------1 አይደለም----------2 አላውቅም----------88	
141	የስኳር በሽተኞችን የአመጋገብ ሰርዓት የያዘ መመሪያ መጽሃፍ ምግብዎን ለማዘጋጀት ተጠቅመው ያውቃሉን	አዎ እጠቀማለሁ ----------1 አዎ አልፎ አልፎ እጠቀማለሁ ----------2 አልጠቀምም ----------3 እደዚህ ዓይነት መመሪያ መኖሩንም አላውቅም -------4 መመሪያ መፅሃፉ በእጅ ስላልገባ አልጠቀምም----------5	መልሱ 3፣4፣5 ከሆነ ወደ ጥያቄ ቁጥር 143 ይሻገሩ
142	መልስዎ አዎ ከሆነ መመሪያውን መጽሃፍ ከየት አገኙት?	ከጤና ጣቢያ----------1 ከመፅሃፉት መሸጫ መደብር ----------2 ከድህረ ገጽ (ኢንተርኔት)----------3 ከጓደኛዬ ----------4 ሌላ----------5	
143	የአመጋገብ ስርዓት ባለሙያ ጎብኝተው ያውቃሉ?	አዎ, አንዴ ----------1 አዎ, በተደጋጋሚ ----------2 ጎብኝቼ አላውቅም----------3 የአመጋገብ ስርዓት ባለሙያ የለም--------4	

Annex 7.Amharic version of interview guide for FGD.

<u>የቃለ መጠይቅ መምሪያ</u>

<u>መግቢያ</u>

እኔ --------- እባላለሁ፡፡ ይህ/ች ከእኔ ጋር ያለው/ያለችው የስራ ባልደረባዬ _____ ይባላል/ትባላለች፡፡

ከአዲስ ኮንቲነንታል ኢንስትዩት ኦፌ ፐብሊክ ሄልዝ እና ጎንደር ዩኒቨርሲቲ ነው የመጣነው፡፡

እዚህ የመጣነውም በአመጋገብ የስኳር በሽታን ስለመቆጣጠር ጥናት ለማድረግ ነው፡፡

ስለ ሥኳር በሽታ ምንነት፣ ሥለህክምናው እና ሥኳር በሽታን በአመጋገብ መቆጣጠር ጋር ተያያዥነት ስላላቸው ጉዳዮች ልንጠይቃችሁ እንወዳለን፡፡

ከፈቃዳችሁልን ውይይታችንን በቴፕ እንቀደዋልን፡፡

በውይይታችን ላይ የሰጣችሁን መረጃዎች በሙሉ ምስጥራዊነታቸው የተጠበቀ ይሆናል፡፡

አሁን ውይይታችን በቴፕ እንድንቀዳ ፍቃደኞች ናችሁ?

በውይይቱ ወቅት ሌሎች የምንናገረውን ነገር በትክክል እንዲሰሙ ድምጻችንን ከፍ አድርገን መናገር ይጠበቅብናል፡፡ ሀሳባችንንም በነጻነት መግለጽ እንችላለን፡፡ የሌሎችን አስተያየት ማክበር ይጠበቅብናል፡፡ በአንድ ጊዜ አንድ ሰው ብቻ እንዲናገር እድል ይሰጠዋል፡፡

አሁን ውይይታችንን አንድ በአንድ ራሳችንን በማስተዋወቅና ስራችንን በመግለጽ እንጀምራለን፡፡

<u>ሀ. ማሟሟቂያ ጥያቄዎች</u>

አሁን ስለ ስኳር በሽታ የምታውቁትን ነገር ለመስማት እንወዳለን፡፡

1. **ስለ ስኳር በሽታ የምታውቁትን ንገሩን**
2. **ስኳር በሽታ የሚያመጡትን ነገሮች ንገሩን**

3. ስኳር በሽታን እንዴት ማከም ይቻላል፡፡

ማወጣጣት፡- ይህን ስትሉ ምን ማለታችሁ ነው

የበለጠ ልታብራሩልን ትችላላችሁ

ልትጨምሩ የትምፈልጉት ነገር ካለ

<u>ለ. በአመጋገብ ስኳርን ስለመቆጣጠር</u>

አሁን ስኳር በሽታን በአመጋገብ ስለመቆጣጠር ልንጠይቃችሁ ወደድን

1. ስኳር በሽታን በአመጋገብ ስለመቆጣጠር የምታውቁትን ንገሩን
2. ስኳር በሽታን በአመጋገብ መቆጣጠር ያሉት ጥቅሞች ምንድናቸው

ማወጣጣት፡- የበለጠ ግልጽ ልታደርጉልን ትችላላችሁ

ምሳሌ ልትሰጡን ትችላላችሁ

<u>ሐ. በሽተኞች የስኳር በሽታን በአመጋገብ መቆጣጠርን በትክክል ስለመተግበር</u>

1. ስኳር በሽታችሁን እንዴት በአመጋገብ ልትቆጣጠሩ እንደምትችሉ ንገሩን
2. በሽተኞች ስኳር በሽታን በአመጋገብ መቆጣጠር በትክክል እንዳይተገብሩ የሚያደርጉዋቸው ሁኔታዎች ምንድናቸው፡፡

ውይይታችንን ከማጠናቀቃችን በፊት ሳንጠይቃችሁ የቀረን ነገር ካለ ወይም መጨመር የሚትፈልጉት ነገር ካለ እንድትናገሩ እድሉን እንሰጣችኋለን፡፡

በውይይቱ በመሳተፋችሁ በጣም እናመሰግናለን፡፡

የሰጣችሁን መረጃዎች በሙሉ ለኛ በጣም ጠቃሚዎች ናቸው፡፡

Annex 8 Amharic version Semistructured Interview Guide for Indepth Interview.

የቃለመጠይቅ መመሪያ

መግቢያ

ስሜ ---------- እባላለሁ፡፡ የመጣሁት

ከአዲስ ኮንቲነንታል ኢንስትዩት ኦፈ ፐብሊክ ሄልዝ እና ጎንደር ዩኒቨርሲቲ ነው፡፡

እዚህ የመጣሁት በአመጋገብ የስኳር በሽታን ስለመቆጣጠር ጥናት ለማድረግ ነው፡፡

ስለ ሥኳር በሽታ ምንነት፣ ሥለህክምናው እና ሥኳር በሽታን በአመጋገብ መቆጣጠር ጋር ተያያዥነት ስላላቸው ጉዳዮች ልጠይቆት እወዳለሁ፡፡

ከፈቀዱልኝ ውይይታችንን በቴፕ እቀደዋለሁ፡፡

በውይይታችን ላይ የሰጡኝ መረጃዎች በሙሉ ምስጥራዊነታቸው የተጠበቀ ይሆናል፡፡

አሁን ውይይታችን በቴፕ እንዲቀዳ ፍቃደኛ ኖት?

1. **ስለ ስኳር በሽታ የሚያውቁትን ንገሩኝ**

   ማወጣጣት፡- ሌላስ

   የበለጠ ግልጽ ሊያደርጉልኝ ይችላሉ

2. **ስኳር በሽታ የሚያመጡትን ነገሮች ይንገሩኝ**

   ማወጣጣት፡- የበለጠ ግልጽ ሊያደርጉልኝ ይችላሉ

3. **ስኳር በሽታን እንዴት ማከም ይቻላል፡፡**

   ማወጣጣት፡- ይህን ሲሉ ምን ማለትዎ ነው

   የበለጠ ሊያብራሩልኝ ይችላሉ

4. **ስኳር በሽታን በአመጋገብ ስለመቆጣጠር የሚያውቁትን ይንገሩኝ**

   ማወጣጣት፡- ሌላስ

5. ስኳር በሽታን በአመጋገብ ስለመቆጣጠር የእርስዎን ልምድ ያካፍሉኝ ማወጣጣት፡- የበለጠ ግልጽ ሊያደርጉልኝ ይችላሉ
6. በብዛት የሚጠቀሙትን የምግብ አይነት ቢነግሩኝ
7. በሽተኞች ስኳር በሽታን በአመጋገብ መቆጣጠር በትክክል እንዳይተገብሩ የሚያደርጉዋቸው ሁኔታዎች ምንድናቸው፡፡
8. የስኳር ማህበር አባል ነዎት?

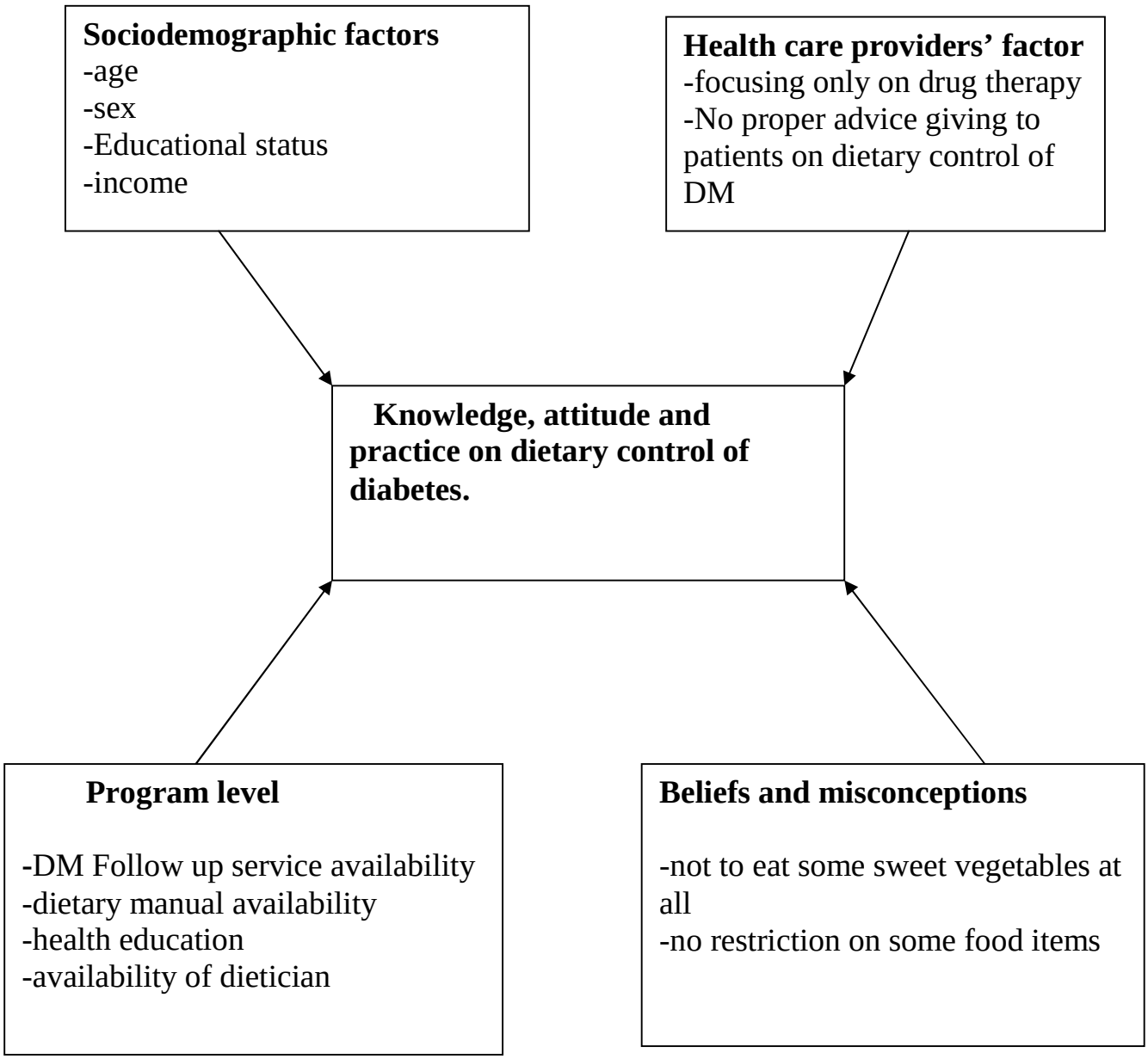
ውይይታችንን ከማጠናቀቃችን በፊት ሳልጠይቆዎች የቀረ ነገር ካለ ወይም መጨመር የሚፈልጉት ነገር ካለ እንዲነግሩኝ እድሉን እሰጣለሁ፡፡

በውይይቱ በመሳተፎ በጣም እመሰግናለሁ፡፡

የሰጡኝ መረጃዎች በሙሉ ለኔ በጣም ጠቃሚዎች ናቸው፡፡

Annex-9 Conceptual Frame work

Conceptual framework: factors associated with KAP of diabetic patient on dietary control of DM



Declaration

I, the undersigned declares that this thesis is my original work in partial fulfillment of the requirement for the degree of Masters of Public Health .I also declare that it has never been presented in this or any other university and that also resources and materials used in the thesis have been duly acknowledged.

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Place of submission: _____

Date of submission: _____

This thesis has been submitted with my approval as a university advisor.

Advisor Name: Amare Worku(MD,MPH)

Signature: _____

Date of submission: _____